REMARKS/ARGUMENTS

Claims 1, 2, 5-11, 14-22, 25-30 and 33-36 were rejected and remain pending. Claims 34-36 have been amended merely to correct clerical mistakes in their reference to other claims. Reconsideration and allowance are respectfully requested.

Claim Rejections – 35 USC § 103

Claims 1, 2, 5-11, 14-22, 25-30 and 33-36 were rejected under 35 U.S.C. 103(a) as being unpatentable over Luick (U.S. Patent Publication 2003/0229662) in view of Conn Jr. (U.S. Patent 5,795,068). This rejection is respectfully traversed and reconsideration is requested.

Claim 1 is directed to a method for determining the actual temperature of a chip having two ring oscillators. The frequency of each ring oscillator is measured. The actual temperature of chip is calculated as a function of these two measured frequencies. As explained in paragraph [0029] of the patent specification, this enables the temperature measurement to be substantially independent of variations in processor speed. Thus, an accurate temperature reading of several chips can be made, even though variations in their processor speeds may result during manufacture.

Luick is directed to eliminating hot spots among several processors on a single chip. In one embodiment, the frequency of one ring oscillator is subtracted from the frequency of another. *See* FIG. 6 and paragraph [0056]. If the difference exceeds a threshold, the system interprets this as meaning that the chip has a hot spot and switches processing tasks from the hotter processor to the cooler processor. *See* Paragraph [0016] – [0017].

Substantially unlike the invention of claim 1, however, Luick does not calculate the actual temperature of the chip. Indeed, Luick does not even calculate temperature at all. Nor is the difference which Luick calculates representative of the temperature of anything. Based on a calculated difference of 1 MHz, for example, one could not possibly tell whether the chip was at 40 or 100 degrees centigrade or at some other temperature.

Conn Jr. uses empirical testing to determine the relationship between various frequencies of a ring oscillator and the temperature of the oscillator. Conn Jr. then creates a map with this data and uses this map to determine the temperature of the oscillator based on the measured frequency of the oscillator. Substantially, unlike the invention of claim 1, however, Conn Jr. does not determine the temperature of a chip based on the frequency measurements of two ring oscillators.

The Examiner appears to recognize these differences, but urges that it would nevertheless have been obvious to have modified Luick to have used the technology disclosed in Conn Jr. to determine the actual temperature of the chip in Luick. The Examiner contends that this modification would have been obvious "in order to optimize chip performance." Applicant respectfully disagrees. Modifying Luick to have measured the temperature of the chip would not have optimized its performance in any way. To the contrary, it would have frustrated the primary purpose of Luick – to determine whether one processor on the chip was running substantially hotter than another. Only impermissible hindsight could provide a reason for such a modification.

Claims 2, 5-9, 16 and 33 are dependent upon claim 1 and thus are also patentable in view of Luick and Conn Jr.

Claims 10, 19, and 30 contain limitations comparable to the limitations discussed above that distinguish claim 1 from Luick and Conn Jr. and thus are also patentable in view of these references.

Claims 11, 14, 15, 17, 18, 20-22, 25-29, 34-36 are dependent upon claim 10, 19, or 30 and thus are also are also patentable in view of Luick and Conn Jr.

Claims 5, 14, and 25 also require the temperature to be determined as a function of the *product* of the two oscillator frequencies. This feature is also not disclosed in either Luick nor Conn Jr. Although the Examiner continues to contend that this feature is disclosed in paragraph [0056] of Luick, Applicant has again reviewed the paragraph and again cannot find such a disclosure. Luick merely discloses that a "difference" of these frequencies is determine. A

difference is not a product. Should the Examiner continue to contend otherwise, Applicant would be grateful if the Examiner would quote the language on which the Examiner relies.

Claims 6, 15, and 26 also require the temperature to be determined as a function of the *quotient* of the two oscillator frequencies. Again, this feature is not disclosed in either Luick nor Conn Jr. Although the Examiner again continues to contend that this feature is disclosed in paragraph [0056] of Luick, Applicant again disagrees. As pointed out above, Luick merely discloses that a "difference" of these frequencies is determine. A difference is not a quotient. Should the Examiner continue to contend otherwise, Applicant would be grateful if the Examiner would quote the language on which the Examiner relies.

CONCLUSION

In view of the foregoing, Applicant submits that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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